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ADDRESS BY
FRANK P. MOOLIN, JR.

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ENGINEERING NEWS-RECORD
"CONSTRUCTION'S MAN OF THE YEAR"
ANNUAL DINNER

MACKENHE VALLEY PIPELINE INQUIRY

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Pipeline 'Choked' By Government?

6-Southeast Alaska Empire, Juneau, Alaska, Thurs., Feb. 19, 1976

NEW YORK (AP) — The top engineer of the \$2-billion Alaska Pipeline says the construction industry is being insidiously choked by "regulatory agencies at both state and federal levels."

"We'll never see another project like this pipeline if the U.S. Congress' damndesters the major oil companies," Frank P. Moolin Jr. declared Wednesday night. "If divisive legislation comes to pass, the resultant smaller companies would never have the financial clout to capitalize superprojects. Even without diversification, the oil industry will have financial problems. Regulatory agencies, at both state and federal levels, staffed by thousands of regulation writers are insidiously choking industry."

"We're facing an over-lapping, redundant, contradictory and, in some cases, unnecessary regulations."

Moolin spoke at the annual dinner of the Engineering News-Record, which honored the senior project manager of the Alaska Pipeline as the construction industry's "Man of the Year."

Discussing the difficulties of constructing the 800-mile, 48-inch pipeline, the biggest single project ever undertaken by private industry, Moolin denied reports of a billion-dollar loss in property thefts.

"We can tell you," he declared, "that in 1975 we lost property valued at \$25,000 — most of it due to theft. That's too much across the country, you know, crime is one of the fastest growing costs of construction — a very serious problem."

Moolin said the project got off to a slower-than-expected start but added that "we can assure you we are on schedule now."

As for fears of environmental ills, Moolin told his audience: "Listen, never has any project been subject to more careful government scrutiny, to more environmental stipulations. Last fall we spent \$25,000 to protect the home of one beaver."

planning
commission

THANK YOU, ART. I'M BEING TREATED WELL HERE IN NEW YORK... THE AWARD...THE HOSPITALITY OF YOUR ENGINEERING NEWS-RECORD STAFF...AND THE HEAT WAVE I ENJOYED YESTERDAY. I'M ADVISED IT WAS THE HOTTEST FEBRUARY 17TH IN 86 YEARS...A NICE TOUCH FOR YOU TO THROW IN FOR A GUY JUST DOWN FROM ALASKA.

TONIGHT I WANT TO UPDATE YOU ON THE ALASKA PIPELINE PROJECT ...TO REPLACE SOME MYTHS WITH FACTS...TO COMMENT ON WHAT WE BELIEVE WE'VE LEARNED ON THIS PROJECT...AND TO POSE A POLEMIC THAT CONCERNS SOME OF US, NAMELY WHETHER THE PRIVATE SECTOR CAN COPE WITH THE NEXT GENERATION OF SUPER PROJECTS.

FIRST, HERE ARE A FEW SUPERLATIVES TO GIVE YOU A PICTURE OF WHY WE CALL THE TRANS ALASKA OIL PIPELINE A SUPER PROJECT:

- * ALASKA, ITSELF, IS A SUPERLATIVE. IT'S LAND MASS IS 20 PER CENT OF THE CONTIGUOUS 48 STATES. ITS TERRAIN IS THE MOST RUGGED IN NORTH AMERICA, MARKED BY THREE MAJOR MOUNTAIN RANGES...AND THE PIPELINE CROSSES ALL OF THEM. IT'S A LAND WHERE TEMPERATURES CAN RANGE FROM PLUS 90 DEGREES TO MINUS 30.

- * PARADOXICALLY, AS YOU KNOW,

- * PARADOXICALLY, AS YOU KNOW, DESPITE ITS SIZE, ALASKA HAS THE SMALLEST POPULATION OF THE 50 STATES. MOST DON'T REALIZE HOW SMALL. ITS POPULATION IS ABOUT THE SAME AS EL PASO, TEXAS...350,000 PEOPLE.
- * ALASKA POLITICS ARE A GENUINE CONCERN TO THE OIL INDUSTRY. THE STATE LEGISLATURE WIELDS A TAXING POWER NOT UNLIKE THAT OF A MID-EASTERN SHEIKDOM.
- * AGAINST THAT BACKGROUND, LET ME DESCRIBE PRUDHOE BAY ON ALASKA'S NORTH SLOPE. THE SADLEROCKET FORMATION WAS CONFIRMED IN MID-1968. IT HOLDS A RECOVERABLE RESERVE OF ABOUT 10 BILLION BARRELS OF OIL AND 26 TRILLION CUBIC FEET OF GAS...THE LARGEST OIL FIELD IN NORTH AMERICA.
- * WHEN THAT FIELD IS PRODUCING ONE-AND-A-HALF MILLION BARRELS PER DAY, IT WILL REPRESENT BETWEEN ONE-FIFTH AND ONE-QUARTER OF OUR DOMESTIC PRODUCTION IN THE UNITED STATES.
- * THE OIL INDUSTRY FOUGHT THROUGH NEARLY SIX YEARS OF COURT AND CONGRESSIONAL ACTION BEFORE WINNING PERMITS FOR A CONSTRUCTION START UP IN APRIL OF 1974.
- * NOW, A CONSORTIUM OF...

- * NOW, A CONSORTIUM OF EIGHT OIL COMPANIES HAS THE ALYESKA PIPELINE SERVICE COMPANY ON THE JOB BUILDING THE LINE. BY THE WAY... "ALYESKA" IS AN ALEUT WORD MEANING "GREAT LAND".
- * ALYESKA IS 44 PER CENT COMPLETE WITH THE PROJECT, WHICH INVOLVES LAYING AN 800-MILE, 48-INCH HOT OIL PIPELINE FROM PRUDHOE BAY TO A TANKER TERMINAL AT VALDEZ, WITH 12 LARGE PUMP STATIONS ALONG THE WAY. AS OF TODAY, WE'VE LAID 370 OF THE 800 MILES OF PIPE.
- * THIS JOB WILL COST OUR EIGHT OWNERS ABOUT \$7 BILLION... AMERADA HESS, ARCO, SOHIO, EXXON, MOBIL, PHILLIPS, UNION AND B-P... ADDITIONALLY THEIR CAPITAL IS FINANCING THE 150 PRODUCTION WELLS AT PRUDHOE AND ACQUIRING THE CRUDE OIL TANKER FLEET FOR THE ALASKA TRADE. THAT'S NO SMALL SUM FOR THE OIL INDUSTRY, OR ANY INDUSTRY.
- * A FEW MORE DETAILS ABOUT THE PIPELINE ITSELF. IT'S A HUGE CIVIL UNDERTAKING. WE'VE MOVED 60 MILLION CUBIC YARDS OF MATERIAL TO BUILD 1,500 MILES OF ROAD AND WORKPAD. THIS IS NECESSARY BECAUSE MOST OF THE RIGHT-OF-WAY IS ICE-RICH... PERMAFROST... PERPETUALLY FROZEN GROUND THAT'S HIGHLY SENSITIVE TO EROSION.
- * THIS UNSTABLE SUBSURFACE CONDITION...

* THIS UNSTABLE SUBSURFACE CONDITION REQUIRES US TO ELEVATE ABOUT 420 MILES OF THE LINE ABOVE GROUND ON BENTS. THAT'S THE EXPENSIVE WAY TO GO...ABOUT THREE TIMES MORE COSTLY THAN CONVENTIONAL BURIED PIPE. I'LL TELL YOU HOW EXPENSIVE...WE NEED 40,000 BENTS AND THE MATERIAL FOR EACH ONE COSTS THE SAME AS A LOADED CADILLAC.

* THE PIPELINE PORTION OF THE JOB ALONE...NOT COUNTING THE TERMINAL AND PUMP STATIONS...WILL RUN 80 MILLION MANHOURS. THAT'S TOO BIG A JOB FOR ANY ONE CONSTRUCTION COMPANY OR JOINT VENTURE. YOU'VE HEARD THE OLD BROMIDE ABOUT HOW YOU CAN'T MAKE A BABY IN A MONTH BY MAKING NINE WOMEN PREGNANT...WELL, WE CAN LAY A PIPELINE IN TWO YEARS BY PLACING FIVE GIANT JOINT VENTURE CONTRACTORS ON THE JOB, EACH RESPONSIBLE FOR A SECTION OF THE PIPELINE.

NOW LET'S TOSS OUT SOME FACTS TO REPLACE SOME MYTHS. FIRST, THE PIPELINE PROJECT ISN'T THE CUCKOO'S NEST OF THE NORTH. WE FLY THE PRESS OVER THE LINE DAILY, AND TO READ SOME OF THEIR REPORTS YOU'D THINK WE'RE ALL BANANAS.

* YOU MAY RECALL JACK ANDERSON REPORTED NATIONALLY A FEW WEEKS AGO THAT WE WERE MISSING 10 MILES OF PIPE. THE PREVIOUS DAY WE HAD TOLD ANDERSON'S STAFF THAT THIS SIMPLY WASN'T A FACT.

* BUT ANDERSON DIDN'T LET...



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* BUT ANDERSON DIDN'T LET THE FACTS GET IN THE WAY OF HIS STORY. YOU REALIZE, OF COURSE, TEN MILES OF PIPE WOULD HAVE REQUIRED 200 TRUCKLOADS, WITH EACH TRUCK 100 FEET LONG AND CARRYING 30 TONS OF PIPE. THERE'S ONLY ONE ROAD OUT, AND WE'RE CONFIDENT ONE OF OUR 300 SECURITY GUARDS WOULD HAVE NOTICED SOMETHING STRANGE.

* HERE'S ANOTHER...TWO REPORTERS NAMED ENDICOTT AND GOODMAN OF THE LOS ANGELES TIMES ARE TRYING TO WIN A PULITZER AT THE EXPENSE OF ALASKA AND THE PIPELINE. TRYING TO BE THE WOODWARD AND BERNSTEIN OF THE WEST COAST, THEY SUGGESTED THAT ONE BILLION DOLLARS HAVE BEEN RIPPED OFF THE PROJECT, NOW...THAT'S PREPOSTEROUS...BUT IT GOT A LOT OF PRESS.

* IF YOU SWIPED ALL 800 MILES OF OUR PIPE, SHIPPED OUT ALL 30 OF OUR CONSTRUCTION CAMPS, AND WALKED OFF WITH ALL 14,000 PIECES OF OUR EQUIPMENT...YOU'D STILL BE SHORT OF A BILLION DOLLARS.

* WE CAN TELL YOU THAT IN 1975 WE LOST PROPERTY VALUED AT \$335,000...MOST OF IT DUE TO THEFT. THAT'S TOO MUCH, BUT IT'S ONLY THREE ONE-HUNDRETHS OF ONE PER CENT OF THE BILLION DOLLAR FIGURE BANDIED ABOUT BY THE L-A TIMES. ACROSS THE COUNTRY, YOU KNOW, CRIME IS ONE OF THE FASTEST GROWING COSTS OF CONSTRUCTION...A VERY SERIOUS PROBLEM.

* PERHAPS THE MOST COMMON...

* PERHAPS THE MOST COMMON MYTH IS THE ONE THAT WE'RE NOT ON SCHEDULE. START UP PROBLEMS DID CAUSE SERIOUS SCHEDULE SLIPPAGE IN OUR INITIAL MONTHS...BUT AS THE SONG GOES, IT'S NOT WHERE YOU START, IT'S WHERE YOU FINISH. WE CAN ASSURE YOU WE ARE ON SCHEDULE NOW. THE PIPELINE WILL BE LAID BY THE END OF THE YEAR, AND THE TERMINAL AND PUMP STATIONS WILL BE ON LINE BY MID-SUMMER OF 1977. AT THAT TIME WE'LL LOAD THE LINE WITH ABOUT 600,000 BARRELS PER DAY AND BUILD TO 1.2 MILLION BARRELS PER DAY BY THE CLOSE OF THE YEAR. THE PIPELINE HAS A DESIGN CAPACITY OF TWO MILLION BARRELS PER DAY.

* THERE'S STILL SPECULATION THAT WE'RE DAMAGING THE LAND AND KILLING OFF ALASKAN WILDLIFE. LISTEN, NEVER HAS ANY PROJECT BEEN SUBJECT TO MORE CAREFUL GOVERNMENT SCRUTINY...TO MORE ENVIRONMENTAL STIPULATIONS. LAST FALL WE SPENT \$25,000 TO PROTECT THE HOME OF ONE BEAVER. LAST SPRING WE PLACED A CONSTRUCTION HOLD ON A SECTION OF THE RIGHT-OF-WAY TO AVOID AWAKENING A HIBERNATING BEAR. INCIDENTALLY, I'M NOT NECESSARILY PROUD OF THESE ACTIONS. THERE'S A POINT WHERE YOU HIT THE LOW SHOULDER OF A BELL CURVE AND CAUSE MORE WASTE THAN YOU PREVENT BY TRYING TO BE AN ECOLOGICAL PURIST.

* TO PUT THE PIPELINE AND ALASKA IN

* TO PUT THE PIPELINE AND ALASKA IN PERSPECTIVE...WHEN THE CONSTRUCTION PHASE ENDS AND THE PIPELINE GOES OPERATIONAL ...THE LINE, THE PUMP STATIONS AND THE TERMINAL WILL OCCUPY LESS THAN 12 SQUARE MILES OF ALASKA'S 586,400 SQUARE MILES OF TERRITORY.

* OIL SPILLS...SO FAR WE'VE EXPERIENCED ONLY INDUSTRIAL SPILLS...NO CRUDE OIL HAS BEEN SPILLED. WE'VE HAD LEAKS IN SEVERAL INCH-AND-A-HALF DIESEL FUEL LINES IN OUR CAMPS...AND SEVERAL TANK TRUCKS HAVE OVERTURNED. WE DON'T LIKE THESE SPILLS BECAUSE THEY'RE COSTLY TO CLEAN UP. BUT, FRANKLY, THEY HAVEN'T CAUSED ANY SIGNIFICANT ENVIRONMENTAL DAMAGE. THE SIGNIFICANT CONCERN, OF COURSE, WILL BE CONTROL OF ANY LEAKS OR BLOWOUTS ON THE MAINLINE WHEN IT'S CARRYING CRUDE. ELABORATE STEPS ARE BEING TAKEN TO PREVENT OR LIMIT THAT TYPE OF SPILL.

* WE'RE IN THE NEWS REGULARLY. LAST NIGHT AND TODAY N-B-C NEWS ANNOUNCED...AND WE QUOTE..."A SERIOUS PROBLEM HAS COME TO LIGHT" ON THE TRANS ALASKA PIPELINE. N-B-C NEWS CORRESPONDENT JACK PERKINS REPORTED, "ALL THE (X-RAY) INSPECTION (OF PIPE WELDS) MUST BE DONE AGAIN." HE CALLED IT A SCANDAL. WELL, AS PERKINS FULLY KNOWS, THE PROBLEM ISN'T JUST COMING TO LIGHT. ALYESKA BEGAN WORK ON IT LAST JULY. I HELD MY INITIAL NEWS CONFERENCE ON THE MATTER LAST SEPTEMBER. E-N-R COVERED THE STORY IN SEPTEMBER...

E-N-R COVERED THE STORY IN SEPTEMBER, I BELIEVE. WE'VE ISSUED NEWS RELEASES EXPLAINING DETAILS. THOUSANDS OF COLUMN INCHES OF NEWSPAPER SPACE HAVE BEEN DEVOTED TO THE FACTS OVER THE PAST SIX MONTHS. THE REALLY SERIOUS PROBLEM THAT'S COME TO LIGHT AT N-B-C NEWS IS THE FACT JACK PERKINS IS SIX MONTHS LATE WITH HIS STORY...THAT'S THE REAL SCANDAL. SERIOUSLY, PERKINS IS NOT ONLY LATE ...HE'S MISLEADING. THE FACT IS NOT THAT ALL THE X-RAYS MUST BE SHOT AGAIN. WE HAD TO RE-SHOOT ABOUT 700 OUT OF 10,000.

- * ALSO TODAY ON N-B-C, PERKINS NOTED THE ESTIMATED COST OF THE PIPELINE PROJECT CLIMBED FROM \$900 MILLION TO OUR PRESENT CONTROL ESTIMATE OF \$7 BILLION. TRUE ENOUGH AS FAR AS HE GOES...PUT HE'S COMPARING APPLES AND ORANGES... WHICH I CAREFULLY EXPLAINED TO HIM IN ALASKA ABOUT A MONTH AGO. THE \$900 MILLION FIGURE WAS ANNOUNCED IN 1969 BY A DIFFERENT CONSORTIUM OF OIL COMPANIES WHICH HAD NO NOTION THAT COURT AND CONGRESSIONAL DELAY WOULD RUN FIVE YEARS, OR THAT LATER GEOTECHNICAL FIELD WORK WOULD DICTATE THAT MORE THAN HALF THE PIPE WOULD GO ABOVE GROUND. A FAIR COMPARISON WOULD BE TO SAY THE COST OF THE PIPELINE HAS DOUBLED FOR THE PRESENT CONSORTIUM OF OWNERS.

- * TURNING TO LABOR PRODUCTIVITY...

* TURNING TO LABOR PRODUCTIVITY...I'M NOT ENAMORED BY WHAT WE'RE GETTING. UNIONS HAVE A BASIC RESPONSIBILITY TO IMPROVE THE WAY THEY'RE OPERATING. BUT IN FAIRNESS, UNTIL NOW ON OUR PROJECT, IT'S BEEN DIFFICULT TO SEPARATE THE CAUSES OF NON-PRODUCTIVE SITUATIONS...IT'S BEEN DIFFICULT TO IDENTIFY WHETHER LABOR WAS AT FAULT OR WHETHER MANAGEMENT'S PLANNING AND CONTROL WERE THE PROBLEM. CERTAINLY THERE HAVE BEEN INSTANCES OF FEATHER-BEDDING ON THIS PROJECT...BUT SHOW US A CONSTRUCTION PROJECT WHERE NONE OCCURS. AND, CERTAINLY THERE HAVE BEEN LABOR DISRUPTIONS...BUT, ACTUALLY, WE HAVEN'T HAD MANY, AND THOSE WE'VE HAD WERE RELATIVELY MINOR. WE HAVE A PROJECT LABOR AGREEMENT...HONORED BY MANAGEMENT AND THE UNIONS...AND IT'S WORKING.

THIS CONSTRUCTION SEASON ALYESKA HAS ITS ACT TOGETHER...THE CAMPS, THE EQUIPMENT, THE SPARE PARTS, THE PLANNING, THE ENGINEERS. IN SHORT, WE HAVE EVERYTHING REQUIRED TO GET THE JOB DONE. SO, THE SPOTLIGHT THIS YEAR SHIFTS TO LABOR PRODUCTIVITY. WE'RE WITHIN MATCH POINT OF WINNING ON THIS JOB.

THIS IS A GOOD POINT TO SHIFT FROM THE FACTS AND MYTHS THEME AND TALK ABOUT OUR PLATEAUS OF PROGRESS. WE DON'T OPERATE OFF THE FAMILIAR "S" CURVE. ON THIS TYPE OF PROJECT WE HAVE A SERIES OF PLATEAUS SEPARATED BY BURSTS OF PROGRESS.

FROM 1968 WHEN NORTH SLOPE.....

SEVERAL HUNDRED ENGINEERS HELPED US OVER THIS PLATEAU, AND FINALLY, WE CREATED OUR OWN PLATEAU THIS WINTER WHEN WE ESSENTIALLY SHUTDOWN THE PROJECT FOR TWO MONTHS. THE ARCTIC WINTER IS TOO SEVERE FOR OUR WORKFORCE AND EQUIPMENT.

THIS MONTH WE'RE ACQUIRING THAT CRITICAL MASS AGAIN. WE'RE HIRING ABOUT 1,000 WORKERS A WEEK. WE'LL HAVE NINETEEN TO TWENTY THOUSAND ON THE JOB BY JUNE...SLIGHTLY LESS THAN DURING LAST YEAR'S PEAK.

WE'VE LEARNED WHAT CAN CAUSE A PLATEAU ON THIS TYPE OF JOB...AND WE'VE LEARNED SOMETHING ABOUT MANAGING PEOPLE. IT'S AXIOMATIC TO SAY THAT CHANGE IS CONSTANT ON A CONSTRUCTION PROJECT. NONETHELESS WE'VE FOUND PROJECT MANAGERS WHO THINK LIKE ROCK-RIBBED, STABLE CORPORATE OFFICERS. WE CAN'T AFFORD THAT LUXURY ON A SUPER PROJECT. BY IT'S NATURE, A PROJECT IS UNSTABLE...AFTERALL...WE START WITH NOTHING AND END WITH A UNIQUE, ONE-OF-A-KIND PRODUCT. WE CAN'T APPLY MUCH CORPORATE MANAGEMENT THEORY TO A PROJECT...THERE'S NOT MUCH IN COMMON. FOR EXAMPLE, A CORPORATION HAS ITS OWN PERPETUATION AS A PRIMARY OBJECTIVE; CONVERSELY, THE PRIMARY OBJECTIVE OF A PROJECT IS TO FINISH THE JOB AND GO OUT-OF-BUSINESS.

IF SOME OF MY ACTIONS ARE INTERPRETED IN THAT CONTEXT, THEY'RE MORE UNDERSTANDABLE AND LESS COLORFUL. TOMORROW'S EDITION OF E-N-R DUBS ME "THE BARRACUDA"...I SUPPOSE BECAUSE OF MY RECORD OF DEVOURING MANAGERS.

WELL, I THINK MY ACTIONS CAN...

WELL, I THINK MY ACTIONS CAN BE EXPLAINED. ON THIS PROJECT, AS ON OTHERS, COST AND NECESSITY FORCE US TO MARCH AT DOUBLETIME. IT'S A RUGGED, FAST CADENCE. NORMAL CORPORATE YEARS BECOME MONTHS ON A PROJECT. THE FACT IS WE SHUFFLE OUR ORGANIZATIONAL CHART EVERY MONTH. I HAVE FIRED SOME MANAGERS AFTER THEY'VE BEEN ON THE JOB ONLY A FEW MONTHS. ON THE OTHER HAND, I HAVE MANAGERS WHO HAVE RECEIVED THREE MAJOR PROMOTIONS IN LESS THAN A YEAR. WE HAVE SOME REALLY TALENTED YOUNG ENGINEERS...THE KIND YOU PROVERBially SAY CAN MAKE A WINE CELLAR OUT OF A SINGLE GRAPE. IT WOULD TAKE TEN YEARS OR MORE FOR THEM TO MAKE THE CORPORATE ADVANCEMENT THEY'VE MADE IN ONE YEAR ON THIS PIPELINE PROJECT.

THE E-N-R ARTICLE DEPICTS ME AS A COOL KIND OF LONER. THAT MAY BE THE WAY IT APPEARS, BUT ACTUALLY I'M BEHAVING LIKE A DUCK... KEEPING CALM AND UNRUFFLED ON THE SURFACE, BUT PADDLING LIKE HELL UNDERNEATH.

YOU KNOW...THERE'S A NEW GENERATION OF SUPER PROJECTS JUST AROUND THE CORNER IN AMERICA...IN THE WORLD, FOR THAT MATTER. AND, FRANKLY, I WONDER IF THE CONSTRUCTION INDUSTRY AND PRIVATE OWNERS CAN COPE WITH WHAT'S COMING. THIS PIPELINE JOB HAS GIVEN US A GLIMPSE AT THE TYPES OF PROBLEMS WE MAY ENCOUNTER IN THE FUTURE ON MULTI-BILLION DOLLAR PROJECTS.

WE'VE LEARNED THAT INDUSTRY IS HARD-PRESSED TO FURNISH THE MANAGEMENT FOR AN UNDERTAKING OF THIS SIZE. WE HAVE A GREAT CAPACITY TO DESIGN...

WE HAVE A GREAT CAPACITY TO DESIGN...BUT WE FALL SHORT OF THE MARK IN EXECUTION...IN THE PLANNING AND FOLLOW-UP.

WE CONTINUE TO RE-INVENT THE WHEEL. ABOUT THE ONLY BREAKTHROUGH TO COME OUT OF MAJOR PROJECT MANAGEMENT IN THE PAST 20 YEARS HAS BEEN CRITICAL PATH OR NETWORK SCHEDULING TECHNIQUES. THERE'S MUCH MORE TO PROJECT MANAGEMENT AND WE MUST IDENTIFY IT.

MOST TECHNIQUES OF CORPORATE MANAGEMENT DON'T FIT PROJECT MANAGEMENT. THERE'S ONE EXCEPTION...AND IT'S MANAGEMENT BY EXCEPTION. IT SEEMS TO FIT PROJECTS BETTER THAN CORPORATIONS. MORE YOUNG ENGINEERS SHOULD STUDY MANAGEMENT BY OBJECTIVES AND EXCEPTIONS. ON COMING SUPER PROJECTS, WE MUST HAVE MANAGERS SKILLED IN THE BEHAVIORAL SCIENCES...MEN AND WOMEN WHO CAN CREATE AND GUIDE HIGHLY DYNAMIC, CHANGING CONSTRUCTION ORGANIZATIONS.

THERE ARE MANY THINGS A COMPUTER CAN'T HELP YOU SOLVE IN THIS NANOSECOND WORLD WE LIVE IN. IT'S NOT FAST ENOUGH OR SMART ENOUGH TO HELP WITH MOST PEOPLE PROBLEMS FACED BY TODAY'S PROJECT MANAGERS.

A TOP MANAGER MUST BE ANTICIPATIVE RATHER THAN RESPONSIVE. HE MUST REALIZE MAN IS BASICALLY A GOAL-ORIENTED BEING...THAT PLANNING AND THE SETTING OF OBJECTIVES LEADS TO GOAL ACHIEVEMENT.

ONE FINAL THOUGHT ON MANAGEMENT...

ONE FINAL THOUGHT ON MANAGEMENT...DO YOU RECALL THAT OLD BOY SCOUT SLOGAN..."MAKE IT SIMPLE, MAKE IT FUN"?...WELL, WE TEND TO COMPLICATE PROJECTS UNNECESSARILY. WE BECOME TOO COMPLEX AND IT SLOWS PRODUCTIVITY. I LIKE TO GO INTO THE FIELD AND SHAKE THE TREES...TO STIR UP THINKING THAT HAS GONE STALE. WE DON'T WANT ANYONE FEELING TOO SECURE...SECURITY TAKES THE FUN OUT OF A JOB AND ALLOWS TIME FOR US TO BECOME BUREAUCRATIC.

IN CLOSING, I'LL VENTURE A THOUGHT OR TWO ABOUT THE POLITICS OF PROJECTS. WE'LL NEVER SEE ANOTHER PROJECT LIKE THIS PIPELINE IF THE U-S CONGRESS DISMEMBERS THE MAJOR OIL COMPANIES. IF DIVESTITURE LEGISLATION COMES TO PASS, THE RESULTANT SMALLER COMPANIES WOULD NEVER HAVE THE FINANCIAL CLOUT TO CAPITALIZE SUPER PROJECTS.

EVEN WITHOUT DIVESTITURE, THE OIL INDUSTRY WILL HAVE FINANCIAL PROBLEMS. REGULATORY AGENCIES, AT BOTH STATE AND FEDERAL LEVELS, STAFFED BY THOUSANDS OF REGULATION WRITERS, ARE INSIDIOUSLY CHOKING INDUSTRY. WE'RE GAGGING ON OVERLAPPING, REDUNDANT, CONTRADICTORY, AND, IN SOME CASES, NONSENSICAL REGULATIONS.

THE NEW GENERATION OF SUPER PROJECTS WILL CALL FORTH A NEW EXCELLENCE AS WE LEARN TO NOT ONLY COPE WITH, BUT TO SUCCEED AGAINST, THE MANAGEMENT AND POLITICAL CHALLENGES AHEAD.

THANK YOU.

